Iowa Weather News

National Weather Service, Des Moines, Iowa *March 2003*

The 1993 Flood: Ten Years Later

Suppose the Flood of 1993 occurred Today?

Peter Corrigan, Senior Service Hydrologist

The Great Flood of 1993 was unprecedented in magnitude and severity across central Iowa. Flooding lasted for months on end, reaching a peak in early July floods that crippled much of Iowa. Human impacts and property damage were enormous. Statewide there were seven deaths, 21,000 houses, apartments or mobile homes destroyed or damaged and crop losses estimated at $1 billion. Total damage (statewide) was estimated at $2.7 billion. Major floods have hit parts of central Iowa in 1881, 1903, 1947, 1954, 1961, 1965, 1969, 1990, and 1992, but none of these floods compared in areal extent and overall severity to 1993. How would the National Weather Service (NWS) handle a flood of this magnitude today? In the decade since the Great Flood, the NWS has undergone some of the most sweeping changes in its 133 year history. These changes enable the NWS to respond to an event like 1993 in ways that could only have been imagined a decade ago.

Observational and Data Display Improvements

Perhaps the greatest advances since 1993 have been in the area of observational data. Accurate precipitation estimates are a critical input to hydrologic models that forecast flooding. The NWS uses radar, satellite and rain gages to estimate this critical variable. In 1993 the NWS radar was the WSR-57, which was based on technology first developed in the 1940s. The advent of the WSR-88D Doppler radar in1994 was a huge leap forward in the ability to assess rainfall. This radar provides precipitation estimates for selected durations every volume scan. Geostationary satellites now provide rainfall estimates every 15 to 30 minutes with much better resolution than in 1993. The NWS worked closely with the U.S. Geological Survey, the U.S. Army Corps of Engineers and local officials to increase the density of river and stream gages in the state and the frequency of reports. In addition, most of the 70 stream gages in central Iowa have tipping bucket rain gages that provide near real time rainfall information. In 2002, a partnership was formed between the NWS, KCCI-TV and the Iowa Environmental Mesonet at Iowa State University to allow the NWS to ingest weather and rainfall data from the 47 KCCI SchoolNet stations. The display and analysis of data has also seen vast improvements. The Advanced Weather Interactive Weather Processing System (AWIPS) allows forecasters to ingest and analyze a vast array of meteorological and hydrological forecast data, satellite imagery, radar, and observations.

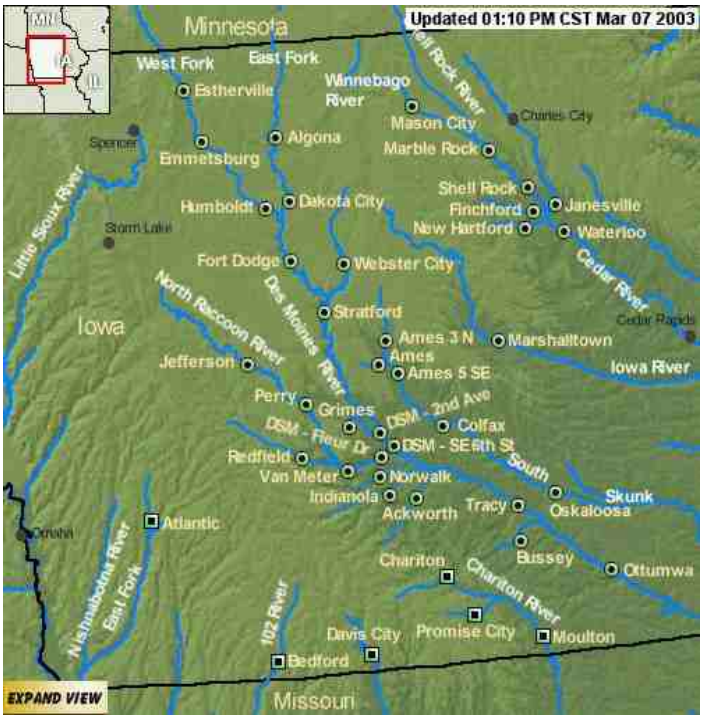
Meteorological and Hydrological Models

The NWS continues to make improvements in meteorological and hydrological models that are the basis for flood forecasts.

Vastly increased computing power and model physics in the weather models enable the NWS to make much more accurate precipitation forecasts. Basin-specific precipitation forecasts are now a critical component of river forecasting and were not even attempted during the Great Flood. The Advanced Hydrologic Prediction Service (AHPS) which was first tested in the Des Moines River basin in 1997, provides longer lead river forecasts out to 90 days on most river forecast points in the Des Moines forecast area. The AHPS website (www.crh.noaa.gov/dmx/ahps) now allows the public to view the maps, the latest river forecasts and comprehensive information about each river forecast point. The map below shows the river forecast points in central Iowa featured in AHPS.

Communications

Veteran forecasters who worked the flood of 1993 are struck by the incredible changes in the area of communications between the NWS and the public it serves. Chuck Myers, Senior Forecaster at the Des Moines WFO in 1993 and today, said “we hardly knew what was going on then compared to today”. Of course the



internet was in it’s infancy 10 years ago and now constitutes an important link between the NWS and the public. This comes in the form of NWS Web pages which provide a wealth of meteorological and hydrological information. In addition the NWS is far better equipped for communications with county emergency management agencies, law enforcement offices, media outlets and a large network of volunteer severe storm spotters.

Product News

Severe Weather Product Headers to Change

At 10 a.m., Tuesday, March 25, 2003, the National Weather Service in Des Moines will change eight World Meteorological Organization (WMO) communication product headers to end-state headers. The second line of the product header, known as the AWIPS identifier, will also change to reflect modern site-location identifiers.

It is extremely important that the entries in communication-system directories exactly match the headers listed below beginning March 25. Failure to do so will prevent high-priority products from reaching their intended audience.

New Product Headers and Identifiers

Tornado Warning	**WFUS53 KDMX TORDMX**
Severe Thunderstorm Warning	**WUUS53 KDMX SVRDMX**
Special Weather Statement	**WWUS83 KDMX SPSDMX**
Local Storm Report	**NWUS53 KDMX LSRDMX**
Flash Flood Warning	**WGUS53 KDMX FFWDMX**
Flood Warning	**WGUS43 KDMX FLWDMX**
Flash Flood Statement	**WGUS73 KDMX FFSDMX**
Flood Statement	**WGUS83 KDMX FLSDMX**

Iowa Weather News is a publication of the National Weather Service in Des Moines, Iowa. If you have comments or suggestions, please contact:

Jeff Johnson
Warning Coordination Meteorologist
9607 N.W. Beaver Drive
Johnston, Iowa 50131
515-270-4501, ext. 726
jeff.johnson@noaa.gov

Severe Weather Awareness Week

March 24-28, 2003

The National Weather Service and the Iowa Emergency Management Division co-sponsor Severe Weather Awareness Week to increase the public's awareness and knowledge of severe weather and other Iowa hazards.

The National Weather Service will be promoting severe-weather safety during Severe Weather Awareness Week by issuing informative Public Information Statements twice a day that focus on different topics each day. Topics this year will include severe weather products, severe thunderstorms, tornadoes, flooding and all-hazards preparedness.

A severe-weather test drill will be held on Wednesday, March 26, 2003, at 10 a.m. The test drill will last 30 minutes and will contain a practice tornado watch, warning and ending statement. Please mark your calendar and plan to participate in the drill.

Lightning Awareness Week

June 22-28, 2003

The nation will celebrate its second annual National Lightning Safety Awareness Week June 22-28, 2003. The National Weather Service in Des Moines will participate in Lightning Awareness Week by releasing Public Information Statements, conducting media interviews and upon request providing lightning safety presentations. If you have a group who would be interested in hosting a lightning safety presentation, please contact Jeff Johnson at the National Weather Service.

The Public Information Statements will focus on different aspects of lightning safety. The topics include a lightning overview, the science of lightning, lightning safety outdoors, lightning safety indoors and medial aspects.

For detailed lightning safety information, visit the National Lightning Awareness Week web site at:
http://www.lightningsafety.noaa.gov/week.htm